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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/577,951 | 08/02/2006 | Yasuhiro Araki | 8062-1038 | 5284 |

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| EXAMINER | |
|---|---|
| GRAHAM, CHANTEL LORAN | |
| ART UNIT | PAPER NUMBER |
| 1775 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 12/09/2010 | ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DocketingDept@young-thompson.com

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/577,951 | ARAKI ET AL. | |
| | Examiner | Art Unit | |
| | CHANTEL GRAHAM | 1775 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *24 September 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1,3,4,6,8-14 and 16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4,6,8-14 and 16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Amendment*

1. The amendment filed 9/24/2010 has been entered and fully considered.

2. Claim 15 has been canceled.

3. Claims 1 and 8-12 have been amended.

4. Claims 1, 3-4, 6, 8-14 and 16 are pending and have been fully considered.

### *Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1, 3-4, 6 and 8-11 are rejected under 35 USC 103 (a) as being obvious over SAITOU ET AL. (US PG PUB 20030213728), and in view of MATSUMOTO ET AL. US PG PUB 20030023120). Hereby referred to as SAITOU and MATSUMOTO.

Regarding claims 1-4, 6, 8-9 and 11, SAITOU teaches a method for producing gasoline composition having a sulfur content of 1 ppm or less (abstract) and a research octane number of 89.0 or more (abstract and TABLES), comprising a desulfurization step of

subjecting a cracked naphtha fraction **(desulfurizing the diene-reduced cracked naphtha fraction to obtain a desulfurized cracked naphtha fraction) (**(para 64) having a 5 vol % distillation temperature of 25.degree.C or more, a 95 vol % distillation temperature of 210.degree.C or less **(a 5 vol % distillation temperature of 25.degree. C. or more, a 95 vol % distillation temperature of 210.degree. C. or less)** (abstract and para 14), an olefin content of 35 vol% or less **(an olefin content of 10 vol% or more; an olefin content of 5 mass% or more)** (abstract), and a diene value of 0.3 g/100 g or less to a desulfurization treatment **(a diene value of 0.3 g/100 g or less to a desulfurization treatment)** (see Table 4), and a blending step of mixing the resulting desulfurized cracked naphtha fraction with another gasoline base materials (para 64 and Table 4). A diene-reducing step of reducing the diene content of the raw cracked naphtha fraction by causing the cracked naphtha fraction to come into contact with a diene-reducing catalyst in advance (para 64); and a vapour pressure of 0.098 MPa or less **(reducing diene-reduced cracked naphtha fraction by contacting the cracked naphtha fraction with a diene-reducing catalyst) (the desulfurization treatment causing the cracked naphtha fraction to come in contact with a porous desulfurization agent having a sulfur sorption function in the presence of hydrogen under hydrogen partial pressure of 1MPa or less) ((iii) fractionating simultaneously with reducing the diene content of the cracked naphtha fraction)** (para 28).

SAITOU does not explicitly teach the concentration of naphtha fraction with another gasoline base material; however MATSUMOTO does. MATSUMOTO teaches a method and composition of gasoline (para 1) containing deeply desulfurized light naphtha (abstract) obtained by hydro-refining and nickel **(nickel)** type adsorption cracking agent

(para 55) having a sulphur concentration of 1 ppm or less (para 64); and the DHN and DLN in a fuel oil composition of 30 and 70 vol % respectively; and an octane number of 89 or more, see arguments above (see also TABLE 2).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the gas composition of SAITOU; by incorporating method and composition of MATSUMOTO.

The motivation would have been to produce a duel purpose fuel for use in both an automotive spark ignition engines and a fuel cell system as taught by SAITOU (para 8).

Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Regarding claim 10, modified SAITOU in view of MATSUMOTO teaches distilling crude oil by means of a normal pressure distillation unit, to thereby yield a light naphtha fraction before additional processing takes place **(a pretreatment step)** (para 23).

## *Claim Rejections - 35 USC § 103*

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 12-14 and 16 are rejected under 35 USC 103 (a) as being obvious over SAITOU ET AL. (US PG PUB 20030213728), in view of MATSUMOTO ET AL. US PG PUB 20030023120), in view of COKER ET AL. (US PATENT 6913688), and as evidence by FLETCHER ET AL. (US PATENT 5352354). Hereby referred to as SAITOU, MATSUMOTO, COKER, and FLETCHER.

11. Claims 1, 3-4, 6 and 8-11 of 103 (a) rejection above is hereby incorporated.

Regarding claims 12, 13, 14 and 16, SAITOU teaches an octane number of 89.0 or more, a 50 vol % distillation temperature of 105.degree. C. or less, an olefin content of 10 vol % or more, a total sulfur content of 1 ppm or less (see argument above); and a boiling point of 35-100 degree C (see TABLE 4).

SAITOU does not explicitly teach a thiophene compound to the sulfur compounds of 50% or more of sulfur; however it is inherently taught by FLETCHER. FLETCHER teaches an olefinic sulfur-containing **(2-methylthiophene)** compound has a sulfur content of at least 50 ppmw **(i.e. at least 0.005% and greater)** (see claims 1 and 17).

SAITOU does not explicitly teach olefins of 90 vol % or more; however COKER does. COKER teaches at least about 5% concentrations of olefins **(i.e. at least 5% and greater)** (see claim 9).

In view of this data, the examiner's position is that the ranges overlap or encompass the claimed ranges. "In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the gas composition of SAITOU; by incorporating olefin concentrations of COKER.

The motivation would have been to produce a dual purpose fuel for use in both an automotive spark ignition engines and a fuel cell system as taught by SAITOU (para 8).

Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Regarding claims 1, 3, 4, 6, 8-14 and 16, specifically the claim limitation "…fractionating the diene-reduced cracked naphtha fraction **prior** to desulfurizing…" it is the Examiner's position that no distinction is seen to exist because reversing the order of steps in a process does not impart patentability when no unexpected result is obtained. Ex parte Rubin (POBA 1959) 128 U.S.P.Q. 440, Cohn v. Comr. Pats. (DCDC 1966) 251 F Supp 378, 148 U.S.P.Q. 486

In addition, the sequence of adding or mixing materials is prima facie obvious in the absence of new or unexpected results; as stated in the MPEP § 2144. Applicant states that subjecting the cracked naphtha fraction **prior** to reducing diene content, however Applicant has fail to disclose that this sequence of adding would give new or unexpected results from prior art of record, and burden shifts to Applicants to establish evidence to the contrary or evidence of criticality.

Finally, the patentability of a product or apparatus does not depend on its method of production or formation. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. See *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (see MPEP § 2113).

***Response to Arguments***

12. Applicant's arguments filed 9/24/2010 have been fully considered but they are not persuasive.

Applicant argues on pages 7-9, *"… that the reducing of the diene content does, indeed occur in advance of the desfinizing step, as it appears that this order was not given patentable weight…" and "However, Applicant understood that this previously presented position was based on the Examiner taking "Official Notice" that "the reforming a fuel is equivalent to hydro- refining and the catalyst is equivalent to a diene-reducing catalyst"* Arguments by Applicant are not deemed to be persuasive; therefore Examiner respectfully disagrees and maintains the rejection of record. In addition, the Examiner has further clarified the Office position regarding claims 1, 3, 4, 6, 8-14 and 16, it is the Examiner's position that no distinction is seen to exist because reversing the order of steps in a process does not impart patentability when no unexpected result is obtained. Ex parte Rubin (POBA 1959) 128 U.S.P.Q. 440, Cohn v. Comr. Pats. (DCDC 1966) 251 F Supp 378, 148 U.S.P.Q. 486 In addition, the sequence of adding or mixing materials is prima facie obvious in the absence of new or unexpected results; as stated in the MPEP § 2144. Applicant states that subjecting the cracked naphtha fraction **prior** to reducing diene content, however Applicant has fail to disclose that this sequence of adding would give new or unexpected results from prior art of record, and burden shifts to Applicants to establish evidence to the contrary or evidence of criticality. Finally, the patentability of a product or apparatus does not depend on its method of production or formation. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. See *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (see MPEP § 2113). (See rejection above).

Applicant argues on page 10-11, "*…the combination of SAITOU, MATSUMOTO with or without COKER and FLETCHER fails to render obvious claims 12-14 and 16, and withdrawal of the rejection is respectfully requested.*" Examiner respectfully disagrees for at least the reasons set forth above. In addition, SAITOU teaches an octane number of 89.0 or more, a 50 vol % distillation temperature of 105.degree. C. or less, an olefin content of 10 vol % or more, a total sulfur content of 1 ppm or less (see argument above); and a boiling point of 35-100 degree C (see see rejection above). *SAITOU was not relied on to teach* **2-methylthiophene**, however FLETCHER does teach an olefinic sulfur-containing **(2-methylthiophene)** compound has a sulfur content of at least 50 ppmw **(i.e. at least 0.005% and greater)** (see rejection above); and COKER was relied on to teach at least about 5% concentrations of olefins **(i.e. at least 5% and greater)** (see rejection above). In view of this data, the examiner's position is that the ranges overlap or encompass the claimed ranges. "In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976).

## *Conclusion*

13. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHANTEL GRAHAM whose telephone number is (571)270-5563. The examiner can normally be reached on M-Th 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Marcheschi can be reached on 571-272-1374. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/CHANTEL GRAHAM/
Examiner, Art Unit 1775

/Ellen M McAvoy/
Primary Examiner, Art Unit 1771